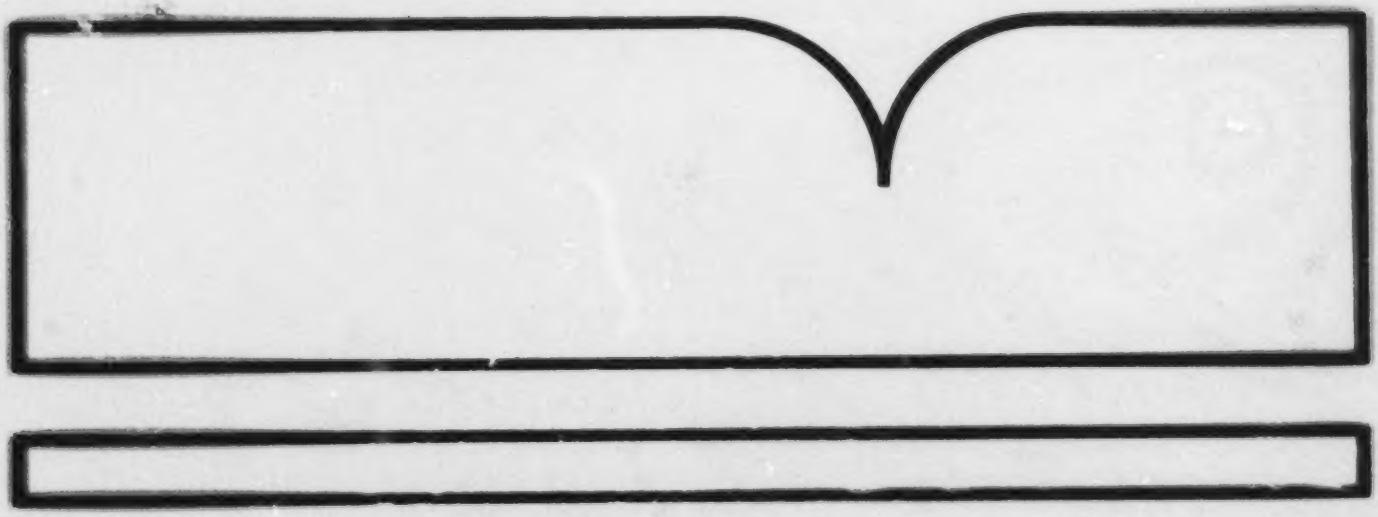
F89-206304

Superfund Record of Decision (EPA Region 2): Burnt Fly Bog Superfund Site, Marlboro Township, Monmouth County New Jersey (Second Remedial Action) September 1988

(U.S.) Environmental Protection Agency, Washington, DC

29 Sep 88



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Remedial Response

EPA/ROD/R02-88/072
September 1988

PB89-206304

EPA

Superfund Record of Decision:

Burnt Fly Bog, NJ

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The Burnt Fly Bog site is located in Marlboro Township, Monmouth County, New Jersey. The site is situated in a rural area with an auto salvage yard and a few scattered residences nearby. The entire Burnt Fly Bog encompasses about 1,700 acres. This remedial action addresses the 10-acre area constituting the Westerly Wetlands Operable Unit. The area is affected by contamination from the 10-acre parcel where waste was originally deposited (Uplands Area Operable Unit). The site includes both flood plains and wetlands. Contamination has been detected in the surface water, surface soil, and the shallow subsurface soil as a result of uncontrolled discharges and runoff from the Uplands Area waste sources. The Uplands Area includes several abandoned oil storage and treatment lagoons containing residual oil sludges and aqueous wastes, contaminated waste piles, and buried or exposed drummed wastes. These are the result of activities at the site from 1950 to 1965. The site property is presently owned by Mr. Dominick Manzo, who operated part of the property as a sanitary landfill from 1963 to 1969. The Uplands Area is currently being cleaned up under a Record of Decision signed on November 16, 1983. The volume of soil contaminated with PCBs and lead is estimated to be 76,400 yd^3 at the site, with an additional 5,600 yd^3 of contaminated sediments in an adjacent downstream area. There is no evidence of PCB contamination in surface water.
(See Attached Sheet)

cont on pg ii

17. Document Analysis a. Descriptors

Record of Decision
Burnt Fly Bog, NJ
Second Remedial Action
Contaminated Media: sw, soil, sediments
Key Contaminants: metals (lead), PCBs

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

Availability Statement	19. Security Class (This Report) None	21. No. of Pages 49
	20. Security Class (This Page) None	22. Price

EPA/ROD/R02-88/072
Burnt Fly Bog, NJ
Second Remedial Action

16. ABSTRACT (continued)

The primary contaminants of concern affecting the surface water, soil and sediments are PCBs and lead.

The selected remedial action for this site includes: access restrictions; excavation of contaminated sediments from the downstream area with disposal at an offsite RCRA Subtitle C facility; as an interim remedy, containment without capping contaminated soil in the Westerly Wetlands through installation of a sedimentation basin and appropriate diversion controls; and performance of treatability studies on the most promising innovative technology alternatives to provide the final remedy. A subsequent ROD will address this final remedy for the contaminated soil. The estimated present worth cost for this remedial action using a 20-year life estimate is $6,100,000 with annual O&M costs of $320,000.

DECLARATION STATEMENT

RECORD OF DECISION

Burnt Fly Bog
Westerly Wetlands

SITE NAME AND LOCATION

The Burnt Fly Bog Superfund site is located in Marlboro Township, Monmouth County, New Jersey.

STATEMENT OF PURPOSE

This decision document presents the selected interim remedial action for the Westerly Wetlands portion of the Burnt Fly Bog Superfund site, developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent applicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300.

The State of New Jersey has been consulted and agrees with the selected remedy for the Westerly Wetlands operable unit of the Burnt Fly Bog Superfund site.

STATEMENT OF BASIS

I am basing my decision primarily on the following documents, which are contained in the administrative record, and which characterize the nature and extent of contamination and evaluate remedial alternatives for the Burnt Fly Bog site:

- Westerly Wetlands Supplemental Stage II Field Investigations: Volume Estimate of Contaminated Soils--Final Report, prepared by Ebasco Services, January 1988;

- Westerly Wetlands Supplemental Stage II Investigations: Feasibility Study, prepared by Ebasco Services, January 1988;

- Westerly Wetlands Supplemental Stage II Investigations: Water Budget, prepared by Ebasco Services, January 1988;

- Environmental Information Document: Engineering Study for the Cleanup of Burnt Fly Bog, Marlboro Township, New Jersey, prepared by Dames & Moore, March 1983;

- Record of Decision for Burnt Fly Bog, Uplands Area Operable Unit, November 16, 1983;

- Basis of Design Report: Upland Area Remedial Action, prepared by Ebasco Services, May 1986;

- Implementation of Final Remedial Action at the Burnt Fly Bog Site Uplands Area: Volumes I and II, prepared by Ebasco Services, July 1986;

- Proposed Remedial Action Plan for the Burnt Fly Bog site, March 1988;

- The Responsiveness Summary for the Burnt Fly Bog site based on the public meeting held on March 29, 1988;

- The attached Decision Summary for the Burnt Fly Bog site; and

- Staff summaries and recommendations.

DESCRIPTION OF SELECTED REMEDY

The remedial alternative presented in this document represents an interim remedy for the Westerly Wetlands portion of the Burnt Fly Bog site. This alternative includes the following components:

- Excavation of approximately 5,600 cubic yards of contaminated materials from the Downstream Area which have migrated past the Westerly Wetlands;

- Disposal of the excavated materials at an off-site facility in the same manner as the materials being addressed by the on-going remedial action for the Uplands Area;

- Containment without Capping of the contaminated soil in the Westerly Wetlands through the installation of a sedimentation basin and appropriate diversion controls;

- Construction of a security fence and access road around the Westerly Wetlands; and

- Treatability studies on the most promising treatment alternatives for the contaminated materials in the Westerly Wetlands, the Northerly Wetlands and the Contaminated Soils Area.

DECLARATIONS

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, I have determined that the selected remedy is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate for this remedial action, and is cost-effective.

Furthermore, the remedy utilizes permanent solutions and alternate treatment technologies to the maximum extent practicable for the contaminated materials in the Downstream Area. However, because treatment was not selected as a component of the remedy, it does not satisfy the preference for treatment that reduces toxicity, mobility or volume as a principle element for the contaminated soils in the Westerly Wetlands.

9-29-88
Date

William J. Muszynski, P.E.
Acting Regional Administrator

SUPPLEMENTAL RECORD OF DECISION

DECISION SUMMARY

BURNT FLY BOG SITE

Westerly Wetlands Operable Unit
Marlboro Township, Monmouth County, New Jersey

SITE LOCATION

The Burnt Fly Bog Superfund site is located near the intersection of Texas and Spring Valley Roads in Marlboro Township, Monmouth County, New Jersey, in the east-central part of the State (see Figure 1). The site is situated in a rural area about thirty miles northeast of New Jersey's capital of Trenton and about five miles from Raritan Bay (see Figure 2), with only an auto salvage yard and a few scattered residences nearby.

The Township's dominant land uses include agricultural land, vacant and wooded lands, and residential developments. While the entire Burnt Fly Bog encompasses about 1,700 acres, the area constituting the Superfund site is limited to the approximately sixty acres apparently affected by contamination (see Figure 3). The majority of the waste was originally deposited in a ten acre parcel located in the southeastern area (Uplands Area) of the site. Much of the waste has since migrated westward to the Westerly Wetlands.

SITE DESCRIPTION

The Burnt Fly Bog site consists of two basic areas: the Uplands Area and the Westerly Wetlands (See Figure 4). The Uplands Area includes several abandoned oil storage and treatment lagoons containing residual oil sludges and aqueous wastes, contaminated waste piles, and buried or exposed drummed wastes. The Westerly Wetlands area has contamination in the surface water, surface soil, and the shallow subsurface soil. This contamination is a result of uncontrolled discharges and run-off from the Uplands Area waste sources.

The Uplands Area is currently being cleaned up under a Record of Decision (ROD) signed on November 16, 1983. The Westerly Wetlands and the Downstream Area is the subject of this operable unit ROD.

This site is located in a fringe area of the New Jersey Pine Barrens. The New Jersey Pine Barrens is an environmentally sensitive area of the State. The interior of the bog is considered an undisturbed wilderness area with documented reports of wildlife including red and gray fox, several species of squirrel, rabbit, white-tailed deer, opossum, raccoon, skunk, and seasonal birds. Other wildlife types, such as reptiles and amphibians, are also present.

FIGURE 1

REGIONAL SITE LOCATION
BURNT FLY BOG

FIGURE 2

* LOCATION OF BURNT FLY BOG

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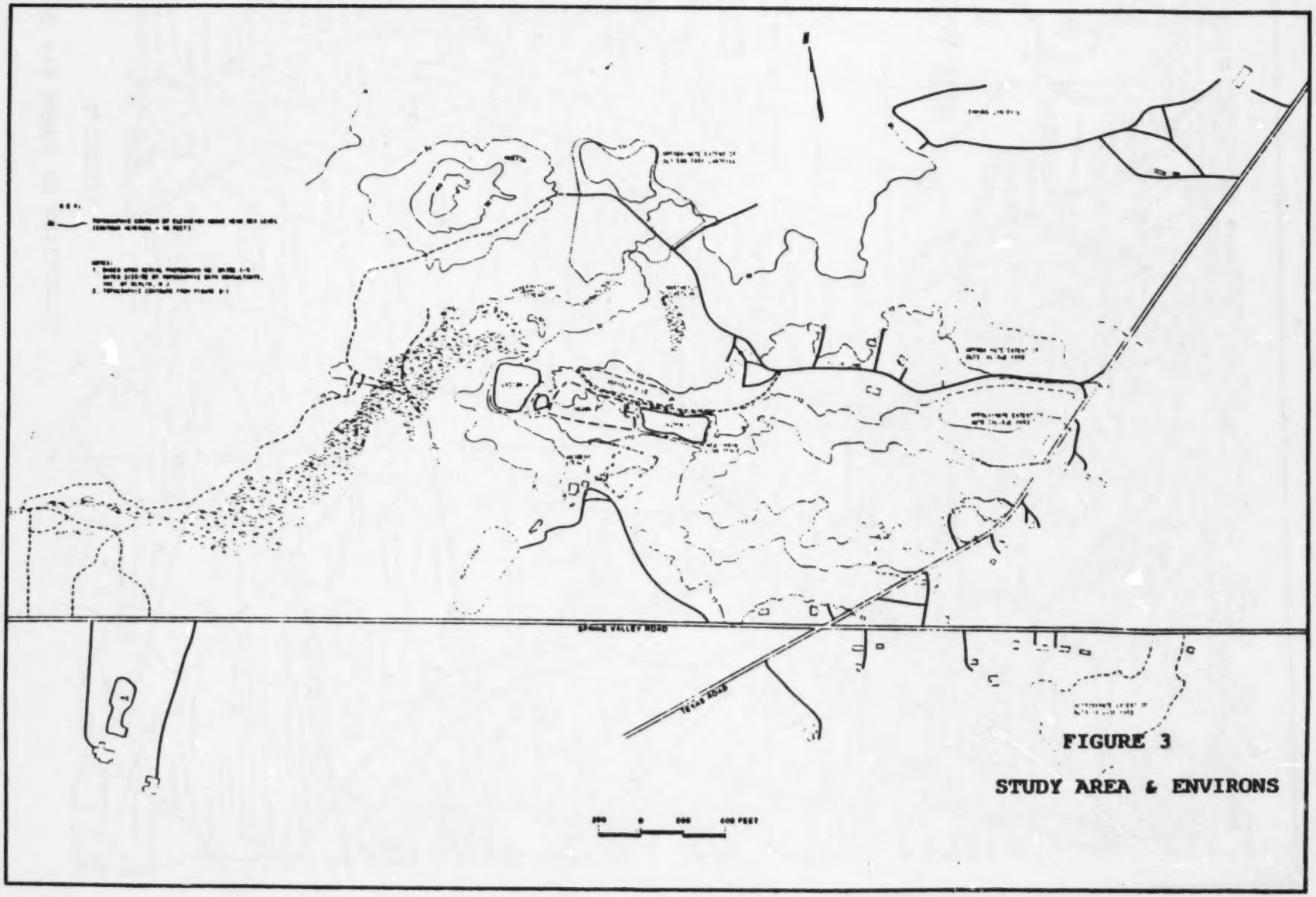

FIGURE 3

STUDY AREA & ENVIRONS

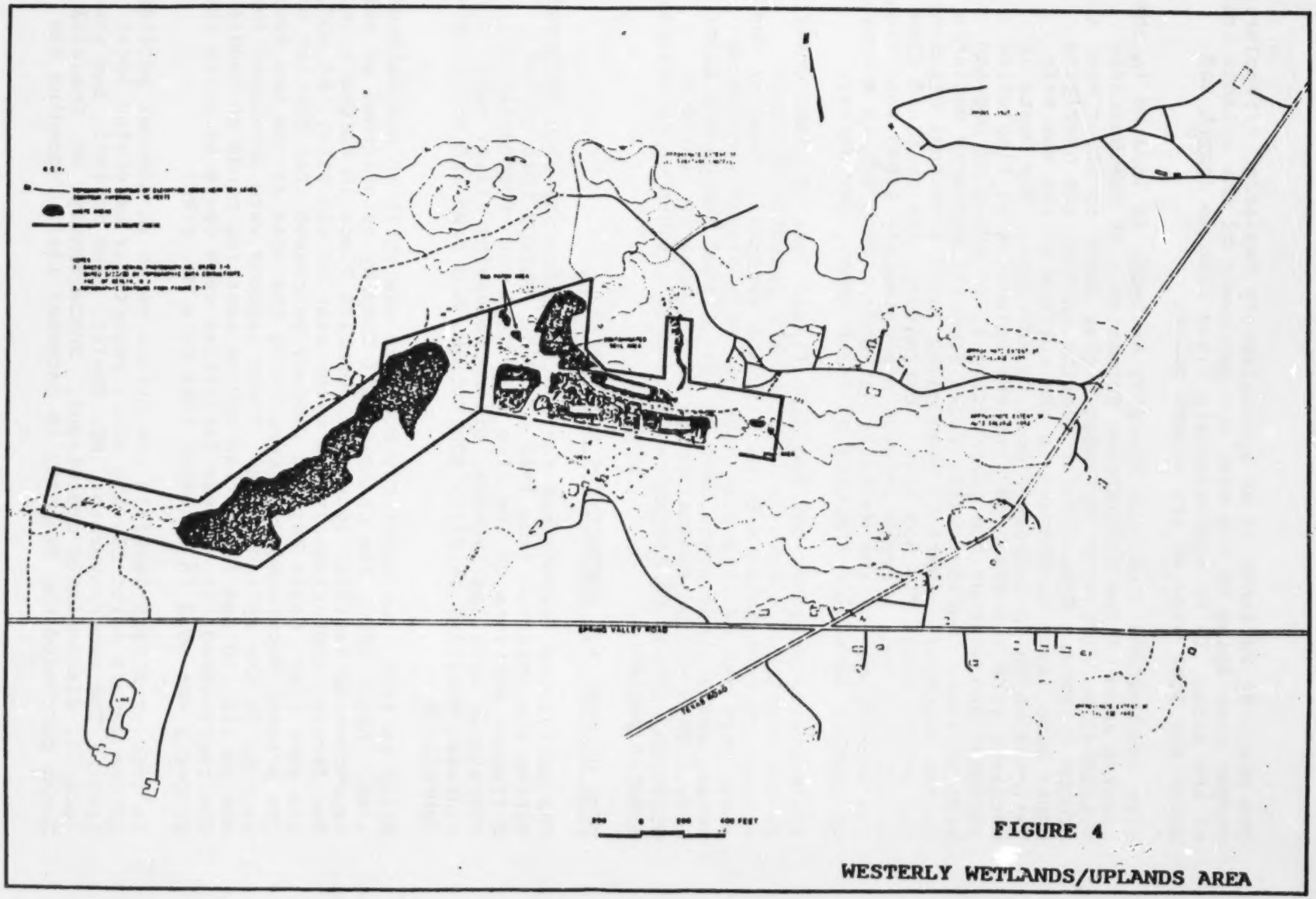

FIGURE 4

WESTERLY WETLANDS/UPLANDS AREA

The Westerly Wetlands is an approximately ten-acre, irregularly shaped area lying to the west and southwest of the Uplands Area of the site. It is approximately 2,500 feet in length and about 200 feet wide at its widest point.

Like the Uplands Area, the Westerly Wetlands is located in the outcrop area of the Englishtown Formation. At the Westerly Wetlands, a relatively impermeable clay layer is at or near the ground surface. Ground water flowing through the overlying upper sand layer discharges to the surface of the Westerly Wetlands which is inundated most of the year. The Westerly Wetlands receives drainage from the Uplands Area (including lagoons) and most of the surrounding 1,700 acres of bog and pine barrens. Surface water flows from the Westerly Wetlands to the southwest, where it eventually joins a channel draining the entire Burnt Fly Bog area. Ultimately, the combined flow enters Deep Run, a creek located approximately 3,000 feet from the western end of the Westerly Wetlands. Deep Run is a source of potable water for the City of Perth Amboy, New Jersey.

The Westerly Wetlands has had significant loss of plant cover as the result of a fire in 1973 and the potentially toxic effects of contaminants present in the Wetlands. Some of the lower portions of this area have not redeveloped vegetative cover, while other areas have re-established indigenous plant life. This varied redevelopment of the area is linked to differing levels of contamination and is influenced by natural erosion patterns.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The activities responsible for contaminating the area occurred during the interval from 1950 to 1965. During this period, different portions of the site were used for reprocessed oil storage or settling lagoons, oil reprocessing filter cake storage, sanitary landfill activities, and sand and gravel pit operations.

Prior to 1950, the Burnt Fly Bog site was still an undeveloped area. About 1950, the Champion Oil Company established an oil reprocessing facility located on Orchard Place in Morganville, New Jersey, approximately two miles east of the site. At about the same time, Eagle Asphalt Company purchased that portion of the present Superfund site comprising the area around the four lagoons in the Uplands Area. These lagoons were developed for use as oil storage facilities and as settling ponds to handle the reprocessed oil. These facilities were operated until the property was sold in November 1964 to a Mr. Eckel.

In 1960, sanitary landfill operations began at another portion of the future Burnt Fly Bog site, reportedly receiving local trash. The owner/operator, Mr. Towler, died in 1961, and the landfill discontinued operations. Subsequently, Mr. Dominick Manzo purchased the property in December 1963, reopening the

landfill and operating it with the approval of the municipality until 1967. In July 1965, Mr. Manzo acquired the former Eagle Asphalt Company property from Mr. Eckel. This purchase, coupled with the purchase of an adjoining plot in July 1968, brought under one ownership adjoining plots of land that together would eventually become known as the Burnt Fly Bog Superfund site.

In 1969, the Middlesex County Court ordered the closure of the landfill. Aside from the deposition of excavated fill from a Hazlet, New Jersey sewer construction project in July 1979, there have been no operations at the site since 1969. On October 26, 1973, a fire started and burned at the site for 16 hours before it was finally extinguished.

The New Jersey Department of Environmental Protection (NJDEP) has the lead for this site. As such, all studies and actions were performed by NJDEP. A remedial investigation and feasibility study (RI/FS) was performed for the Uplands Area to characterize the contamination at the site and to evaluate remedial action alternatives. On November 16, 1983, a Record of Decision (ROD) was signed selecting the remedial action to be taken for this portion of the site. The 1983 ROD also called for a supplemental RI/FS to further investigate the Westerly Wetlands. This supplemental RI/FS was completed in March 1988.

The search for potentially responsible parties (PRPs) for this site is ongoing. To date, the PRPs who have been notified of the impending actions have declined to voluntarily undertake them.

CURRENT STATUS

This Record of Decision addresses the Westerly Wetlands area. The Uplands Area, currently in the remedial action phase, was addressed in a ROD signed on November 16, 1983.

In November 1985, contaminated materials from the "Asphalt Pile" area were removed as an Interim Remedial Measure. In March 1988, remedial activities for the Uplands Area were initiated in accordance with the original 1983 ROD. These remedial activities include excavation and off-site disposal of contaminated materials from the Uplands Area.

Two contaminated areas included in the 1983 ROD (the Northerly Wetlands and the "Contaminated Soils" Area) are not being addressed as part of the current remedial action for the Uplands Area. Since these areas are more topographically and hydrologically similar to the Westerly Wetlands than the Uplands Area, they will be remediated as part of a future ROD for the Westerly Wetlands and these areas.

In addition to defining the remedial actions for the Uplands Area, the 1983 ROD called for further study of the Westerly Wetlands to determine the extent of contamination in this area. Following the 1983 ROD, field investigations were performed to determine the nature and extent of contamination in the Westerly Wetlands as well as the non-wetland area immediately downstream of the Westerly Wetlands known as the Downstream Area. Following the characterization of the study area, a feasibility study was performed to evaluate alternatives for the remediation. The RI/FS was released to the public on March 13, 1988.

COMMUNITY RELATIONS HISTORY

In 1981, concerned residents organized the Burnt Fly Bog Citizens Advisory Committee (BFBCAC). BFBCAC, originally composed of residents from Marlboro and Old Bridge Townships, now includes Marlboro Township residents and officials, and Monmouth County officials. The Committee functions as the liaison between the NJDEP and the local community.

Since the establishment of NJDEP's Community Relations Program in 1982, representatives of NJDEP have met with the BFBCAC approximately four times per year. All pertinent site data, reports and events have been shared and discussed with the BFBCAC to enable their input to be incorporated into the decision-making process involving site activities.

Community concerns have focused primarily on the potential environmental and human health risks posed by the site. The ingestion of contaminated ground water or surface water has been of major concern to the community because of the high lead concentrations at the site. Moreover, residents and officials of neighboring communities have expressed concern about contaminant migration to Deep Run which receives drainage from the Westerly Wetlands.

Several public meetings have been held to present the findings of the Upland Area studies. In August 1983, a public meeting was held to discuss the remedial alternatives evaluated for the Uplands Area of the site and to receive public comment before selecting the remedial action for this portion of the site.

On March 13, 1988, the Westerly Wetlands RI/FS and the Proposed Remedial Action Plan (PRAP) were made available to the public at the Marlboro Township Municipal Building and the Monmouth County Library. The PRAP is a summary of the RI/FS and the remedial actions that are being proposed by the Environmental Protection Agency (EPA) and NJDEP. On March 29, 1988, a public meeting was held to present the findings of the Westerly Wetlands RI/FS and PRAP and to receive public comment. The public

comment period lasted until April 29, 1988, during which time comments and questions from members of the public were accepted. A Responsiveness Summary is attached which incorporates the public comments raised at the public meeting and submitted during the public comment period. Also included in the Responsiveness Summary are the NJDEP and EPA responses to these comments. As stated in the PRAP, notice of the selected remedial action plan (documented in this ROD) will be published and the final plan itself made available to the public at the repositories before the commencement of any remedial action.

SCOPE AND ROLE OF OPERABLE UNIT

As discussed above, a ROD was signed on November 16, 1983 that selected the remedial actions for the Uplands Area. That ROD also called for further investigation into the Westerly Wetlands portion of the site.

In conformance with the 1983 ROD, a supplemental RI/FS for the Westerly Wetlands was performed. This supplemental RI/FS found that there is significant polychlorinated biphenyl (PCB) and lead contamination in the Westerly Wetlands and the Downstream Area that pose risks to human health and the environment. These risks include direct contact with contaminated soils and sediment, and uncontrolled off-site migration of contaminants into Deep Run, which is serving as a water supply for the City of Perth Amboy.

Following the completion of the Westerly Wetlands RI/FS, sufficient information was not available, specifically treatability data, to evaluate potential alternative treatment technologies that may be applied. In view of this and because of the need to take prompt action to mitigate site threats, several alternatives were analyzed for temporary containment. Each of these alternatives is an interim action. However, downstream sediments would be excavated as a final measure and disposed of off-site as a final action.

The treatability studies to be performed will evaluate the most promising innovative technologies for the treatment of the contained contaminated material. Following the completion of the treatability studies, a third ROD will be signed selecting the final remedy for the contaminated soil.

SITE CHARACTERISTICS

Field investigations for the Westerly Wetlands were segregated into the Westerly Wetlands proper and the Downstream Area.

Westerly Wetlands

Chemical analysis of the Wetlands soil has indicated a large extent and high degree of PCB and lead contamination. PCB concentrations in the Wetlands soil range from "not detected" (ND) to 232 parts per million (ppm). The distribution of contaminated soil suggests that the PCB contamination is only a surface phenomenon. In addition, chemical analysis of the surface water in the Westerly Wetlands indicates that PCBs are not present in water. The total volume of PCB-contaminated soil in the Wetlands above 5 ppm (the New Jersey soil cleanup criterion established as the action level for the site) is approximately 62,600 cubic yards (cy). This total does not include the contaminated soils discovered in the Downstream Area.

Lead contamination has been found in the Wetlands soil within the area of PCB contamination and elsewhere. Lead has been found in the Wetlands soil in concentrations ranging from ND to 31,000 ppm.

It was found that an additional 13,800 cy of soil is contaminated with lead above 250 ppm (the New Jersey soil cleanup criterion established as the action level for the site), bringing the total amount of contaminated soils in the Westerly Wetlands to 76,400 cy. Lead was found in the surface water at concentrations ranging from 44 parts per billion (ppb) to 1,900 ppb of total lead (16 ppb to 1,600 ppb of dissolved lead). Finally, it should be noted that contaminated soil continues to migrate with surface water run-off. As such, the area of contamination will continue to change unless some action is taken.

Downstream Area

In the upper reaches of the Downstream Area adjacent to the Westerly Wetlands boundaries, high concentrations of PCBs and lead were detected in the sediments. PCB contamination was found to range in concentration from ND to 8.4 ppm, with approximately 1,400 cy of sediments containing PCBs above 5 ppm. Lead contamination in sediments was found to range in concentration from 2 ppm to 1,900 ppm, with approximately 4,200 cy of sediments above 250 ppm. The total volume of contaminated soils exceeding action levels in the Downstream Area is 5,600 cy. There was no evidence of PCB contamination in the surface water. However, lead was found in the surface water and measured from 4 ppb to 280 ppb of total lead (3 ppb to 200 ppb of dissolved lead), decreasing in the downstream direction.

The total volume of contaminated soils is the sum of the volume from the Westerly Wetlands (76,400 cy) and the volume of contaminated soils from the Downstream Area (5,600 cy). This total volume amounts to 82,000 cubic yards.

SUMMARY OF SITE RISKS

The results of the risk assessment prepared for the Westerly Wetlands indicate that there are two major contaminants of concern, PCBs and lead, and four significant routes of human exposure:

- ingestion of site soil
- ingestion of blueberries grown on-site
- inhalation of airborne contaminants in case of a fire
- ingestion of ground water/surface water

The risk assessment shows that exposure through the ingestion of blueberries poses a marginal concern for lead but may be significant for PCBs.

The potential for fire at the site exists and is evidenced by the fire that occurred in 1973. During a fire, the potential for the release of PCBs into the atmosphere and the formation and subsequent release of polychlorinated dibenzofurans and polychlorinated dibenzo-p-dioxins could pose a significant health risk.

Only lead presents a concern in the potential ingestion of surface and ground water. Given that Deep Run is being used as a water supply downstream of the Westerly Wetlands and the Wetlands becomes a recharge zone for the Englishtown aquifer during drought conditions, there is significant risk associated with this pathway.

In addition to the human health risk, there is also the continued risk to the environment. As noted before, the area has a varied indigenous animal and plant population, which remains at risk under the present site conditions. Further migration of contaminants will continue under the present site conditions, which will threaten the surface water downstream of the site.

DESCRIPTION OF ALTERNATIVES

After screening more than 50 potential technologies, the RI/FS identified fourteen different alternatives for further evaluation. These alternatives were evaluated using remedial action levels of 5 ppm for PCBs and 250 ppm for lead, the New Jersey soil cleanup criteria that EPA and NJDEP have agreed to use for this site.

The 14 alternatives evaluated in the RI/FS were final alternatives that included both conventional and alternative treatment technologies. Final remedial alternatives discussed in the RI/FS included:

Conventional Technologies:

Total In Situ Encapsulation
Excavation and Total Encapsulation (On-site Landfill)
Excavation and Off-site Disposal

Innovative/Alternative Treatment Technologies:

In Situ Vitrification
On-site Incineration
B.E.S.T. Process
Potassium Polyethylene Glycol (KPEG) Process
Fixation/Solidification
Ultrasonics/Ultraviolet Irradiation
Bio-Clean Process

As stated before, since treatability data were not available for the innovative/alternative treatment technologies, they could not be fully evaluated. In addition, since the Superfund Amendments and Reauthorization Act of 1986 requires that treatment alternatives be fully evaluated during remedy selection, a final remedial action could not be selected for this operable unit.

However, since there is currently a risk to human health and the environment, an interim remedial action was considered necessary. This operable unit ROD will address interim remedial actions for the Westerly Wetlands. The interim remedial actions discussed in this ROD were evaluated in the RI/FS as final remedial actions, but are evaluated in this ROD only as interim actions. The following will reference the interim alternatives discussed in this ROD to the final alternatives discussed in the RI/FS and attached responsiveness summary:

ROD	RI/FS & Responsiveness Summary
A. No Action/Site Security	A. No Action
B. Excavation and Site Consolidation	D. Excavation and Site Consolidation
C. Containment without Capping and Excavation of Downstream Area	F. Non-Encapsulation Containment
D. Containment without Capping and Hot Spot Removal	G. Non-Encapsulation Containment and Hot Spot Removal

A portion of three of the remedial actions will include final remedies for proposed excavated portions of the site.

Table I lists the construction activities required for each of the following alternatives:

Alternative A: NO ACTION/SITE SECURITY

EPA considers the no action, or in this case, a limited action alternative as a baseline for comparison with other alternatives. This alternative would leave the Westerly Wetlands in its present state. There would be no action relative to site contamination. However, limited work would be performed including ground- and surface-water monitoring and fencing to limit access to the site.

The ground- and surface-water monitoring program would be performed on a quarterly basis to assess the on-site contribution of contaminants to the shallow and deep aquifers. This would be accomplished through the installation of one shallow and one deep monitoring well to help quantify any contamination from the site. Periodic maintenance of fencing would be required.

Alternative B: EXCAVATION AND SITE CONSOLIDATION

Site consolidation operations would consist of the excavation of contaminated soils from a portion of the Wetlands and putting these soils on the remaining Wetlands area to reduce the total area of contamination. In effect, about one-half of the Wetlands area would be remediated by excavation and the remaining area by containment without capping and sedimentation.

Site operations would involve excavation, backfilling, and construction of the containment system which would include a ditch and dike system and a sedimentation basin.

Approximately 41,000 cy of material would be excavated and consolidated on the remaining five acres of undisturbed contaminated Wetlands. The excavated area would be backfilled and the original grade re-established. A ground water diversion system would be used during excavation. Surface run-on and run-off would be controlled via a ditch system. Run-off and leachate from soil dewatering and ground water pumping during excavation would be channeled to a sedimentation basin.

A ditch and dike system, along with a perimeter access road and fence, would be constructed around the five-acre site in which all the waste material would be contained. No cap would be placed over the contaminated soils.

In addition to ground-water monitoring, maintenance of the site would include site inspections, maintaining roads and fencing, and removal of contaminated liquids that have accumulated in the site consolidation area with transport to an off-site treatment facility.

TABLE I

CONSTRUCTION ACTIVITIES

CONSTRUCTION ACTIVITIES	ALTERNATIVE *			
	A	B	C	D
Access Road Construction		X	X	X
Fencing	X	X	X	X
Waste Excavation		X		X
Other Excavation		X	X	X
Backfilling		X		X
Ground Water/Surface Water Diversion		X	X	X
On-Site Wastewater Treatment		X	X	X
Waste Dewatering/ Stabilization		X		X
On-Site Disposal		X		
Capping				
Off-Site Waste Transport			X	X
Ground water/Surface Water Monitoring	X	X	X	X
Post-Closure Maintenance	X	X	X	X

* Alternative A = No Action/Site Security
Alternative B = Excavation and Site Consolidation
Alternative C = Containment Without Capping, and Excavation of the Downstream Area
Alternative D = Containment Without Capping, and Hot Spot Removal

Although the ingestion and direct contact pathways of exposure to contamination are temporarily controlled in this alternative, contaminant sources still remain on-site and untreated.

Alternative C: CONTAINMENT WITHOUT CAPPING OF THE WESTERLY WETLANDS, AND EXCAVATION OF THE DOWNSTREAM AREA

Containment Without Capping includes the construction of a drainage system and sedimentation basin to control run-on and run-off and reduce further migration of contaminants. In the sedimentation basin, particulate matter would settle, thus reducing the possibility of the spread of contamination. Silt fences and other erosion-control devices would be installed to further limit the run-off of particulate matter from the Wetlands. This alternative also includes the construction of a security fence to limit access to the site and an access road for maintenance.

This alternative would also include excavation of the 5,600 cy of contaminated sediments from the Downstream Area. These sediments would be disposed of off-site at an appropriately permitted RCRA or TSCA facility.

In addition to ground water monitoring, maintenance would include maintaining the drainage system and periodically dredging the basin to remove silt for solidification, off-site transportation, and disposal.

Although this alternative would reduce the threat of direct contact and ingestion pathways from on-site contamination, the contaminant sources would still remain on-site and untreated.

Alternative D: CONTAINMENT WITHOUT CAPPING, AND HOT SPOT REMOVAL

This alternative consists of isolating the contaminated Wetlands Area with a diversion dike and a drainage ditch. The remedy also includes a perimeter security fence and an access road. In addition, soils having PCB concentrations in excess of 100 ppm (hot spots) would be excavated and removed to an off-site permitted facility.

Approximately 18,500 cy of PCB contaminated soils above 100 ppm would be excavated and disposed of off-site. Afterwards, the area would be backfilled and regraded to control erosion. Contaminated run-off from the excavations and from the containment area would be diverted to a sedimentation basin located downstream of the containment area. Run-off ditches would divert run-off flows from outside the containment area. A lined storage area would be located in the Uplands Area as a staging and stabilization area where the excavated Wetlands sands and organic soils

can be mixed, dewatered, treated with stabilization additives, and temporarily stored before being transported off-site for disposal.

A long-term program to monitor ground water will be instituted. Silt fences, erosion-control dikes, and ditches will receive appropriate maintenance. The sedimentation basin will be periodically dredged and the accumulated material removed for solidification and off-site disposal.

This alternative would still leave most of the contaminated material on-site and untreated even though direct contact and ingestion pathways would be eliminated.

COMPARATIVE ANALYSIS OF ALTERNATIVES

All four alternatives will be analyzed in terms of the nine evaluation criteria:

(1) overall protection of human health and the environment
(2) compliance with applicable or relevant and appropriate requirements (ARARs)
(3) long-term effectiveness and permanence
(4) reduction of toxicity, mobility, or volume
(5) short-term effectiveness
(6) implementability
(7) cost
(8) community acceptance
(9) state acceptance

Compliance with ARARs

This section defines what Federal and State environmental and human health requirements are applicable or relevant and appropriate for the remedial alternatives associated with this operable unit for the Burnt Fly Bog site. In addition, this section will define other Federal and State criteria, advisories, guidance and standards considered in evaluating the remedial alternatives for the site.

ARARs and other requirements can be divided into chemical-, action-, and location-specific requirements. While there are no chemical-specific ARARs for the actions discussed in this ROD, there are chemical-specific soil cleanup criteria developed by the NJDEP. These soil cleanup criteria have been accepted as the action levels for the Westerly Wetlands contamination. The action levels for the contaminants of concern in soil are 250 ppm for lead and 5 ppm for PCBs.

Action-specific ARARs include requirements for treatment, storage, and transportation of materials under the Resource Conservation and Recovery Act and the Toxic Substances Control Act.

Since the site is a wetland and is within a floodplain, other location-specific considerations include Executive Order 11990 (Protection of Wetlands) and Executive Order 11988 (Floodplain Management).

Alternative A: NO ACTION/SITE SECURITY

The perimeter fence to be installed as part of the No Action alternative would restrict access to the site, thereby reducing the potential for human contact with and ingestion of the on-site contaminants. Safety concerns, mainly involving the potential for short-term worker safety effects during fence installation, can be mitigated by the use of protective equipment and air monitoring. There would be insignificant effects on neighboring communities.

Although this alternative reduces public access to the site and is somewhat protective of public health, it does not destroy or reduce the inherent hazards posed by the contaminants found at the site. There is no reduction in the toxicity, mobility, or volume of contaminants, and the contaminants will continue to migrate off-site.

The long-term effectiveness of this alternative in reducing the human health risks would remain unchanged.

The No Action alternative is technically feasible since activities are limited to fence construction, and monitoring well installation and surveillance. Costs for this alternative are estimated to be $500,000 for construction costs and $50,000 per year for maintenance. Since additional studies will be performed, the present worth analysis was performed using three-year life (assuming further action will occur in that time) and using twenty-year life (assuming no further action will take place). The present worth for the No Action alternative would be $636,000 and $1.1 million, respectively.

The No Action Alternative is not acceptable to the State of New Jersey nor to the local community, especially since Perth Amboy utilizes Deep Run as a potable water source.

Alternative B: EXCAVATION AND SITE CONSOLIDATION

Site consolidation operations would consist of the excavation of contaminated soils from a portion of the Wetlands and placement of these soils on the remaining Wetlands to reduce the total area of contamination. In effect, approximately one-half of the Wetlands Area would be remediated by excavation and the remaining area by containment without capping.

This alternative is being considered as a final remedy for the excavated portion of the site and an interim remedy for the

remainder. The excavation of the contaminated soils from a portion of the Wetlands would permanently remove the human health and environmental risks from that area.

The interim remedy will provide public health and environmental protection while permanent treatment alternatives are being evaluated further.

Off-site migration of particulate matter would be reduced by silt fences and construction of the sedimentation basin for the consolidated area. Fences surrounding the consolidated area would protect the public from risks associated with contact with contaminated soil. During unusual storm events, some contamination may continue to migrate off-site in the form of dissolved and suspended material in the surface and ground waters.

In the area where there is no excavation, there are no ARARs to be considered. The area being excavated would be cleaned up to the appropriate soil cleanup criteria. Since the excavated material is being consolidated, there is no placement occurring. Therefore, land disposal restrictions are not applicable or relevant and appropriate.

Since this is an interim remedy, the consolidation is not intended to provide treatment or long-term effectiveness and permanence.

Short-term, adverse impacts may occur during excavation due to physical transport of contaminants during and after storm events. However, as appropriate, run-off control measures can be installed to mitigate these impacts. Dust emissions during excavation and transportation activities are expected to be minimal due to the wet nature of the soils. After excavation, erosion of the backfill soils will be controlled with wetland vegetative plantings and seeding.

Costs for this alternative are estimated to be $6,270,000 for construction and $270,000 per year for operation and maintenance. Similar to the No Action alternative, the present worth analysis was performed using three-year and twenty-year life. The present worth costs for this alternative are $7 million and $9.6 million, respectively.

Alternative C: CONTAINMENT WITHOUT CAPPING OF THE WESTERLY WETLANDS, AND EXCAVATION OF THE DOWNSTREAM AREA

Containment Without Capping would consist of controlling run-on and run-off of surface water through a drainage system and a sedimentation basin. These control systems would limit the migration of contaminants off-site. However, dissolved and suspended contaminants passing through the sedimentation basin would continue to migrate off-site. Site access would be limited by the construction of a security fence around the site.

In addition, approximately 5,600 cy of contaminated sediments would be excavated from the Downstream Area. The excavated sediments would be transported for off-site disposal with the contaminated soils currently being excavated in the Uplands Area.

Similar to Alternative B, Excavation and Site Consolidation, this alternative is being considered as an interim remedy for the Westerly Wetlands to provide human health and environmental protection while permanent treatment alternatives are being evaluated further.

The soil and blueberry ingestion pathways of exposure would be reduced by installing a fence to control site access. This remedy provides adequate short-term protectiveness. Controlling contaminant migration through the use of a drainage system and sedimentation basin also affords protection to the environment. It should be noted that while the threat posed through the surface and ground water pathways of exposure is reduced, it still remains a concern.

Since the Containment Without Capping of the Westerly Wetlands is being considered an interim remedy to provide short-term control of the materials, there are no ARARs to be considered. In addition, this interim remedy is not intended to provide treatment or long-term effectiveness and permanence.

The construction of the sedimentation basin and drainage system may temporarily increase the potential for contaminated surface water run-off. However, erosion control measures would be installed to reduce this potential.

Containment Without Capping would involve standard methods of excavation for the drainage system and construction of the sedimentation basin.

The sediments in the Downstream Area will be excavated to the soil cleanup criteria agreed to by the EPA and NJDEP, 5 ppm for PCBs and 250 ppm for lead. These sediments would be transported off-site and disposed of in a RCRA-Subtitle C facility.

Currently, over 80,000 tons of contaminated soil are being excavated and transported off-site for disposal at appropriately permitted facilities (RCRA or TSCA), depending on their concentration of PCBs. The Uplands Area is the source of the contamination in the Westerly Wetlands and the Downstream Area. It is expected that the existing construction contracts for the Uplands Area will be available and it would be expeditious to add the excavation and off-site disposal of the sediments from the Downstream Area to this contract.

None of the contaminated materials at the Burnt Fly Bog site are considered RCRA listed or characteristic wastes. Therefore, the RCRA land disposal restrictions are not applicable and the material can be disposed of off-site without treatment. The highest concentration of PCBs found in the Downstream Area was 8.4 ppm. Treatment to reduce the PCB concentration even lower would be impractical.

Should the existing excavation and off-site disposal contracts not be available to handle the Downstream Area sediments, these sediments would be excavated and consolidated with the Contaminated Soils Area in the Uplands Area. The consolidated materials would then be evaluated for further remedial action under the next operable unit after the treatability studies are performed.

Short-term effectiveness in protecting public health and the environment is related to protecting nearby residents and site workers during the excavation of the sediments. Appropriate health and safety procedures, equipment, and air monitoring would be implemented during construction.

The costs for this alternative are estimated to be $2,210,000 for construction and $320,000 per year for operation and maintenance. The total present worth costs for this alternative are $3.0 million for three-year life and $6.1 million for twenty-year life.

Alternative D: CONTAINMENT WITHOUT CAPPING, AND HOT SPOT REMOVAL

This alternative consists of isolating the contaminated Wetlands with diversion ditches, dikes and a sedimentation basin and the excavation and off-site disposal of soils with a PCB concentration greater than 100 ppm.

This alternative would be a final remedial action for the material excavated and disposed of off-site and interim for the material in the containment system. While this alternative would be effective and permanent for the areas excavated, there would be no reduction in toxicity, mobility, or volume of the excavated soil, such that the contaminants retain their inherent hazardous characteristics.

The evaluation of this alternative leads to the same conclusions as Alternative C, with the following exceptions. Excavation of the soils with PCB concentrations over 100 ppm would increase the protectiveness, long-term effectiveness, and permanence of the remedy. However, there are more soils being excavated with higher concentrations of PCBs than in Alternative C. PCBs have been found in concentrations up to 232 ppm, which is technically practicable to treat.

The estimated costs for this alternative are $17,160,000 for construction and $320,000 per year for operation and maintenance. Again, using three- and twenty-year life estimates, the total present worth costs are estimated at $18 million and $21.2 million, respectively.

THE SELECTED REMEDY

The selected remedy is Containment Without Capping of the Westerly Wetlands as an interim remedy and excavation and off-site disposal of the Downstream Area as a final remedy.

Treatability studies will be performed on the most promising innovative technology alternatives (On-Site Incineration, B.E.S.T., KPEG, and Bio-Clean). These treatability studies will be carried out in a search for a suitable treatment-based remedial action for the Westerly Wetlands soils, the Northerly Wetlands soils and the Contaminated Soils Area. After the studies are completed, the results will be evaluated and a determination will be made as to the preferred remedy. When a preferred remedy is identified, a public meeting will be held to present the results of the study and the proposed action. Subsequently, the selected remedy will be documented in a third Record of Decision for the Burnt Fly Bog site.

Treatability testing of several alternatives could take over a year to complete and evaluate. EPA and NJDEP believe that the risks associated with the existing site conditions warrant an interim remedy for the Westerly Wetlands to reduce these risks while the treatability studies are being performed. In addition, the threat posed by the Downstream Area sediments warrants their removal and disposal. These risks include contact with on-site contaminated soils and the continued off-site migration of contaminants. The off-site migration is threatening to contaminate a potable water source downstream of the site. The selected remedy would provide sufficient human health and environmental protection for the interim period.

The No Action alternative, which includes site security, would not address the risks associated with this site and contamination will continue to migrate off-site.

The remaining alternatives, Excavation and Site Consolidation, and Containment Without Capping, and Hot Spot Removal, may not be consistent with the final remedial action and are not considered cost-effective for an interim remedy. Excavation and Site Consolidation does not add further protectiveness than the selected remedy. In addition, consolidation of excavated material would not likely be needed to implement any future remedy.

While Containment Without Capping, and Hot Spot Removal may be more protective than the selected remedy since high concentra-

tions of PCB-contaminated soil would be removed from the site, the increased protectiveness is not significant enough to justify this remedy over the selected interim portion of the remedy. In addition, the excavated material would have PCBs in concentrations up to 232 ppm. Unlike the material being excavated from the Downstream Area under the selected alternative which has low concentrations of PCBs (8.4 ppm), treatment of these soils to reduce the level of PCBs is potentially effective and needs to be investigated under the next operable unit.

Containment Without Capping, the selected remedy for the Westerly Wetlands, will include the installation of an appropriate drainage system and sedimentation basin. In the sedimentation basin, particulate matter would be allowed to settle, thus reducing the possibility of the spread of contamination. This alternative also includes the construction of a security fence and access road. This alternative will prevent further off-site migration of the lead contamination which is threatening to enter Deep Run, and it will eliminate the direct contact pathway of exposure.

The selected remedy also includes the excavation of approximately 5,600 cy of sediment contaminated with PCBs and lead which has migrated into the Downstream Area. These sediments would be disposed of at an appropriate permitted, off-site hazardous waste facility.

The decision for off-site disposal for the excavated contaminated sediments has been made with the expectation that the existing construction contracts for the Uplands Area can also be utilized for the disposal of this material.

It has been determined that the contamination found in the Downstream Area, while significant enough to pose a threat in the stream, is of a sufficiently low concentration that treatment is not warranted. PCBs have been found in this area at 8.4 ppm. At this level, containment in a RCRA- or TSCA-permitted facility would be protective, and treatment would be technically difficult and unwarranted. It was determined that treatment of the contaminated sediments is not warranted prior to off-site disposal because the waste concentrations are sufficiently low in terms of a direct contact threat and would not pose a ground water threat due to the low mobility of both these contaminants.

STATUTORY DETERMINATIONS

Protection of Human Health and the Environment

The containment of the Westerly Wetlands will reduce the risks posed by the continued migration of contaminants from the Wetlands. The excavation of the contaminated sediments in the Downstream Area will remove the risk of contamination to Deep Run, which is a drinking water source for Perth Amboy. There are no unacceptable short-term risks or cross-media impacts which will be caused by implementation of this remedy.

ARARs

The excavation of the Downstream Area will be done in conformance with the soil cleanup criteria agreed to by EPA and NJDEP, 5 ppm for PCBs and 250 ppm for lead. The selected remedy attains all applicable or relevant and appropriate requirements. Contaminated materials are not RCRA listed wastes and are not expected to be RCRA characteristic.

Cost Effectiveness

The selected remedy provides overall effectiveness proportionate to its cost such that it represents a reasonable value for the money.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The interim solution for the Westerly Wetlands was determined to be the most appropriate solution for the site. It will reduce the existing risks to human health and the environment, while treatability studies are being performed to determine the the most appropriate final remedy for the Westerly Wetlands. The excavation and off-site disposal of the Downstream Area sediments is considered the most appropriate remedy for that portion of the site. The contaminants are found at concentrations which do not warrant treatment prior to off-site disposal.

For the Westerly Wetlands soils, treatment will be considered under the next operable unit study and is not within the limited scope of the selected remedial action.

Both the community and the State support the need for rapid action at this site and support the selected remedy.

Preference for Treatment as a Principal Element

The principal threats of the site involve the continual migration of contaminants into the Deep Run and the potential for direct contact at the site. This interim action will address these principal threats on a short-term basis, while treatability studies are being performed to determine the appropriate final remedy for the Westerly Wetlands.

BURNT FLY BOG SUPERFUND SITE

TEXAS AND SPRING VALLEY ROADS

MARLBORO TOWNSHIP

MONMOUTH COUNTY

NEW JERSEY

RESPONSIVENESS SUMMARY

FOR

WESTERLY WETLANDS

FEASIBILITY STUDY

MAY 1988

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This Community Relations Responsiveness Summary, prepared as part of the Record of Decision (ROD) document, is divided into the following sections:

I. Background on Community Involvement and Concerns

This is a brief history of community interest in the Burnt Fly Bog site and a chronology of community relations activities conducted by the New Jersey Department of Environmental Protection (NJDEP) prior to and during the Remedial Investigation/Feasibility Study (RI/FS) at the Westerly Wetlands portion of the site.

II. Summary of Major Questions and Comments Received during the Public Comment Period and NJDEP's Responses

This is a summary of major questions and comments directed to NJDEP during the March 29, 1988 public meeting regarding the results of the Feasibility Study and sent to NJDEP during the public comment period. NJDEP's responses are included in this section.

III. Remaining Concerns

Discussion of remaining community concerns of which NJDEP and USEPA should be aware in conducting the remedial design and remedial actions at the Westerly Wetlands portion of the Burnt Fly Bog site.

Attachments

A. Agenda and Fact Sheets distributed at the 3/29/88 Public Meeting.

B. List of Speakers at the 3/29/88 Public Meeting.

C. Letters sent to NJDEP during the public comment period.

D. Proposed Remedial Action Plan.

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I. Background on Community Involvement and Concerns

Burnt Fly Bog has consistently received personal attention from residents, the media, and municipal, county, state and federal officials. In 1981, concerned residents organized the Burnt Fly Bog Citizens Advisory Committee (BFBCAC). The Committee originally included representatives from Marlboro and Old Bridge Townships; however, it is now comprised of Marlboro residents and officials and Monmouth County officials. The BFBCAC was formed before the establishment of the Community Relations Program within the NJDEP's Hazardous Site Mitigation Administration. The Committee functions as the liaison between the NJDEP and the local community.

Since the establishment of the NJDEP's Community Relations Program in 1982 (within the Hazardous Site Mitigation Administration) to address Superfund public participation requirements, representatives of NJDEP have been meeting with the BFBCAC approximately four times per year. All pertinent site data, reports and events are shared with the BFBCAC so that NJDEP can incorporate their input into decision-making concerning site activities.

Community concerns have focused on potential environmental and public health risks posed by the site. In particular, the ingestion of contaminated ground water or surface water has been an issue because of the high concentrations of lead on site. The NJDEP routinely tests area potable wells to monitor water quality for these residents. Moreover, residents and officials of Old Bridge, Perth Amboy and Matawan have expressed concern about contaminant migration to Deep Run

which receives drainage from the Westerly Wetlands and serves or will serve as a water supply for these areas.

Another recurring concern regarding the remediation of Burnt Fly Bog is that the site does not become the dumping ground for other hazardous waste site cleanups in New Jersey. Residents are especially sensitive to this issue in light of the potential utilization of on-site incineration to mitigate some of the waste. However, NJDEP has reassured the community that if incineration is used, it will be a mobile, rather than, a permanent unit.

Chronology of Community Relations Activities

June 20, 1984 - Public Meeting to discuss initial surface removal and design for long-term site remediation.

June 20, 1984 - Burnt Fly Bog Citizens Advisory Committee Meeting (BFBCAC)

September 19, 1984- BFBCAC Meeting - discussion of asphalt pile disposal and grant funding amendment to USEPA for $11.3 million.

January 16, 1985 - BFBCAC Meeting - discussion of further contamination found on site.

April 9, 1985 - BFBCAC Meeting - sampling update for the Westerly Wetlands; preliminary disposal costs for Uplands removal.

June 3, 1985 - BFBCAC Meeting - discussion of disposal contract; update on continuation of on-site work.

July 15, 1985 - BFBCAC Meeting - update on Uplands.

October 2, 1985 - BFBCAC Meeting - status of Westerly Wetlands; additional sampling to take place.

November 12, 1985- BFBCAC Meeting - discussion of Health & Safety issues.

January 14, 1986 - BFBCAC Meeting - update on removal of drummed wastes and asphalt pile.

May 22, 1986 - BFBCAC Meeting - details of bid package; Uplands design; Westerly Wetlands Focused Feasibility Study; residential well sampling.

October 7, 1986 - BFBCAC Meeting - discussion of delays in procurement process; status of drummed wastes at the Westerly Wetlands.

May 6, 1987 - BFBCAC Meeting - Westerly Wetlands Supplemental Remedial Investigation; funding; Uplands Invitation for Bid; disposal contracts.

October 1, 1987 - BFBCAC Meeting - discussion of Imperial Oil - Phase I RI results; Burnt Fly Bog - status of Uplands contract award and results of Westerly Wetlands RI.

March 29, 1988 - BFBCAC Meeting and Public Meeting to discuss results of Westerly Wetlands Feasibility Study and construction activities at the Uplands.

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II. Summary of Major Questions and Comments Received During the Public Comment Period and NJDEP's Responses

On March 24, 1988, the Feasibility Study and the Proposed Remedial Action Plan (PRAP) for the Westerly Wetlands was placed in the following repositories: Monmouth County Library, 1 Library Court; Marlboro Township Municipal Building, 1979 Township Drive; NJDEP, 401 E. State Street, Trenton; and USEPA, 26 Federal Plaza, New York, NY. NJDEP issued press releases and contacted municipal, county and state officials and the Burnt Fly Bog Citizens Advisory Committee regarding the PRAP and the availability of the Feasibility Study and the PRAP at the repositories. Additionally, the PRAP was mailed directly to these officials and members of the Burnt Fly Bog Citizens Advisory Committee.

On March 29, 1988, NJDEP held a public meeting to present the results of and receive comments/questions, regarding the Feasibility Study for the Westerly Wetlands as well as the ongoing construction activities at the Uplands. (See Attachment A: agenda and fact sheet distributed at the meeting.) The meeting was held at the Marlboro Township Municipal Building, 1979 Township Drive in Marlboro.

Notification of the public meeting was accomplished through press releases and direct mailing of notices to municipal, county, state and federal officials and concerned citizens. The Burnt Fly Bog Citizens Advisory Committee also notified citizens through their newsletter. Approximately 40 people attended the meeting and seven people commented during the meeting. Responses to comments and questions, for the most part, were stated at the public meeting. The public comment period was

held from March 29 through April 29, 1988. In addition to the comments made during the public meeting only one letter was received by the Department during this period.

After introductory remarks by Director Farro and an overview of the project status and history by Mr. David Henderson of NJDEP, Ms. Sheila Biscobing, Project Manager for Ebasco Services, Inc., gave a presentation of the 14 remedial action alternatives that were considered in the Feasibility Study. These are:

Conventional Technologies

- No Action;
- Total in-situ encapsulation;
- Excavation and total encapsulation on-site;
- Excavation and site consolidation;
- Total excavation and off-site disposal;
- Non-encapsulation containment;
- Non-encapsulation containment and hot spot removal.

Innovative Treatment Technologies

- In-situ vitrification;
- Incineration;
- Basic extraction sludge treatment (BEST) process;
- Potassium polyethylene glycol (KPEG) process;
- Fixation/solidification (cement/silicate-based

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solidification);

— Fixation/solidification (cement-based solidification);

— Bio-Clean.

Mr. David Henderson, Section Chief, Bureau of Site Management, NJDEP then discussed the preferred remedial alternative as developed by NJDEP and the United States Environmental Protection Agency (USEPA). After his presentation, the meeting was opened for questions and comments.

The preferred alternative entails a non-encapsulation containment action as an interim solution to the contamination problem at the Westerly Wetlands portion of the site. This interim action would include the installation of a fence and access road around the Westerly Wetlands and the installation of a sediment collection basin at the outflow of the Wetlands to prevent contamination from being transported downstream. Approximately 5,800 tons of sediment contaminated with polychlorinated biphenyls (PCBs) and lead which has moved off site into a downstream area will be excavated. Restoration and revegetation of the sediment collection basin and restoration of the excavated downstream area will be performed as part of the action.

Concurrently, treatability studies for four of the most promising innovative technology alternatives listed in the PRAP (on-site incineration, B.E.S.T., KPEG, and Bio-Clean) will be carried out in a search for a suitable permanent remedial action for the Westerly Wetlands soils. Once the studies are completed and the results are evaluated, a permanent remedy will be proposed for the Westerly Wetlands. A second Record of Decision will be

developed by NJDEP and EPA with input from the public during another meeting and public comment period.

Following is a summary, organized by subject, of all major questions and comments received by NJDEP at the public meeting and during the public comment period. Major subjects include:

- Preferred Alternative;
- Innovative Technologies;
- Incineration Option;
- Sedimentation Pond Considerations;
- Adjacent Land Use;
- Costs associated with Burnt Fly Bog and the Superfund Program;
- Local Roadways;
- Future Use of Site; and
- Other Contaminants.

Preferred Alternative

Comments: This alternative, as described, would be a temporary holding solution. Alternatives B and C would be more immediate.

Response: The selected alternative, consisting of non-encapsulation containment, installation of a sediment collection basin, and excavation of the downstream area, will be a necessary part of any permanent remedial alternative chosen for the Westerly Wetlands. Alternatives B (Total In-Situ Encapsulation,) and C (Excavation & Total Encapsulation On-Site) would result in the destruction of the wetlands area which is undersirable. Permanent treatment for the site is favored under the mandates of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Neither Alternative B or C would be considered permanent.

Innovative Technologies

Comment: Since innovative technologies are very expensive and are currently undergoing extensive, time consuming treatment studies, NJDEP should concentrate on the less expensive conventional, proven technologies.

Response: As stated in the previous response, NJDEP is mandated under SARA to look at permanent solutions to site problems. This requires conducting treatability studies for four of the most promising innovative technology alternatives in a search for a suitable

permanent remedial action for the Westerly Wetlands soils. The innovative technologies being considered will enable NJDEP to remove contamination from the wetlands, revegetate the area, and restore and maintain the area as a natural resource.

Question: Is Burnt Fly Bog being used as a proving ground for other Superfund sites?

Response: Innovative technologies have been shown to work in various applications, such as in field and laboratory studies and in various mediums, however none have been proven to work under the specific conditions at Burnt Fly Bog. The Westerly Wetlands present a unique scenario where PCBs and lead are together in a wetlands environment; treatability studies will determine whether innovative technologies are applicable to the conditions at Burnt Fly Bog. If so, then Burnt Fly Bog will be a proving ground for a particular technology and its application at the Westerly Wetlands.

Question: Will NJDEP conduct pilot tests for each of the four promising innovative technologies at the Burnt Fly Bog site?

Response: Yes, we will test four innovative technologies (B.E.S.T., KPEG, Bio-Clean and incineration) on site.

Comment: NJDEP should consider a chemical fixation technology known as the SRS/EIF process; developed by E.I.F. Ecologie and offered by Separation and Recovery Systems, Inc.

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Response: Chemical fixation was considered by NJDEP during the Feasibility Study process, however, this type of technology was eliminated from the list of four preferred pilot studies due to the nature and uncertainty of the area's hydrology and the disruption that this technology could cause.

Incineration Option

Comment: Concern was expressed over the possibility that any incinerator used on-site would become a permanent facility for use by other townships or counties. If the incineration alternative is chosen, several residents said they would be in favor of an on-site mobile facility which could be removed after its use at Burnt Fly Bog.

Response: If incineration is selected as a permanent remedy at Burnt Fly Bog, NJDEP would anticipate using a temporary, mobile unit on trailers for incineration of Burnt Fly Bog waste only.

Sedimentation Pond Considerations

Question: What effects, if any, would the sedimentation pond have on the area's wildlife if they were to drink this water? Furthermore, what are the potential health effects if insects or wildlife make human contact after being exposed to the sedimentation pond?

Response: The Remedial Investigation for the Westerly Wetlands indicated that the majority of contamination is attached to the soils and sediments that move along the bottom of the stream. Animal exposure would be minimal, and any secondary exposure to humans would be even less.

Adjacent Land Use

Question: Can NJDEP restrict or limit development on the land that is for sale adjacent to Burnt Fly Bog? Development of adjacent properties should be subject to NJDEP approval.

Response: NJDEP is available to advise potential property buyers of hazardous waste sites near a property through the Land Information Program, however, this service is advisory only. Currently, there is no regulatory or other mechanism which allows the state to become involved with local land use decisions related to hazardous waste sites.

Costs Associated with Burnt Fly Bog and the Superfund Program

Question: Does the cost of each technology have any bearing on which one is chosen?

Response: The USEPA along with NJDEP are required to select the remedial alternative ~~remedial~~ which is best suited to the contamination problems at Burnt Fly Bog, and provides protection of public health and the environment in the most cost-effective manner.

Question: How much funding is needed in the long-term to clean up all of New Jersey's Superfund sites?

Response: It is difficult to estimate the amount of funding needed to clean up all of New Jersey's Superfund sites since each site is unique. However, one estimate in 1987 was that $1.5 billion would be needed to meet New Jersey's cleanup goals for the years 1988 through 1992.

Comment: Concern was expressed regarding the availability of adequate funding to complete the Burnt Fly Bog cleanup.

Response: Since the Burnt Fly Bog site is so far along in the Superfund process (construction at the Uplands and remedial alternative selection at the Westerly Wetlands), we do not anticipate funding problems for this site.

Local Roadways

Question: If local roadways are damaged due to the heavy truck traffic during site remediation, will the cost of replacement and/or repair be covered under the Superfund program?

Response: This issue is currently being looked into by the department. Although NJDEP cannot guarantee payment for road repair, we believe that if damage occurs to local roadways as a result of our cleanup effort, we would repair the roadway.

Future use of Site

Comment: Once the cleanup is completed, Burnt Fly Bog could be used as a wildlife refuge or natural area.

Response: Yes, this future use should be possible.

Other Contaminants

Question: What other contaminants were found at Burnt Fly Bog, aside from PCB's and lead, and will the ultimate treatment technology address these contaminants as well?

Response: The RI/FS determined that lead and PCBs are the most far reaching contaminants at Burnt Fly Bog. If we target the remediation of lead, then we will also address the other metals found on site.

Also, if we target PCBs, other organics will in turn be addressed.

III. Remaining Concerns

Although the local officials and residents are very confident about the ongoing cleanup of Burnt Fly Bog, there are concerns regarding the interim and the permanent remedy for the Westerly Wetlands. These include the use of on-site incineration, the duration of the testing of innovative technologies before a permanent remedy can be decided, and adequate federal and state funding to implement and complete the site cleanup.

The results of the treatability studies for the innovative technologies will be evaluated with respect to the following criteria:

- -- public health and public acceptance;
- -- environmental benefit;
- -- implementability;
- -- treatment of sidestreams produced during process;
- -- timeframe;
- -- cost; and
- -- restoration prospects for the Wetlands.

After the studies are completed, the results will be evaluated and a determination will be made as to the preferred permanent remedy. At this time another public meeting will be held to present the results of the studies and the proposed action. Subsequent to public comment,

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another Record of Decision will be developed by NJDEP and USEPA.